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EXAMINER

ALCALA, JOSE H

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/806,203

Applicant(s)

EN ET AL.

Examiner

Jose H Alcala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 25-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 and 33-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I, Species 5, claims 25-32 in Paper No. 12 is acknowledged.
2. Claims 1-24, 33-63 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 12.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 25, it is not clear if there is only one resin insulating layer that covers both sides of the resin substrate board, or if there are two different resin insulating layers, one on top and one on the bottom of the substrate. In addition, it is unclear if there is a conductor circuit built on each side of the substrate, or just in one of them.

### *Claim Rejections - 35 USC § 102*

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 25-32 rejected under 35 U.S.C. 102(b) as being anticipated by Oodaira et al. (US Patent No. 4,7151,126). As best understood by the examiner:

Regarding Claim 25, Oodaira teaches a multilayer printed circuit board (See figure 7) comprising a resin substrate board (reference number 85) carrying a resin insulating layer (reference number 80) on both sides thereof and a conductor circuit built on said resin insulating layer (reference number 82), wherein said conductor circuit has been formed on the surface of said insulating layer by way of a metal layer composed of at least one metal selected from the among metals (exclusive of Cu) of the 4<sup>th</sup> through 7<sup>th</sup> periods in Group 4A through Group 1B of the long-form periodic table of the elements, Al and Sn (Column 23, lines 28-34).

Regarding Claim 26, Oodaira teaches that said metal layer is a layer containing at least one metal selected from among Al, Fe, W, Mo, Sn, Ni, Co, Cr, Ti and noble metals (Column 23, lines 28-34) .

Regarding Claim 27, Oodaira teaches said resin insulating layer has a flat and level surface (see Figure 7).

Regarding Claim 28, Oodaira teaches that said resin insulating layer comprises a thermosetting polyolefin resin or a thermoplastic polyolefin resin (column 3, lines lines 17-20, and lines 50-51).

Regarding Claim 29, the limitation that: "said resin insulating layer has a surface obtained by plasma treatment or corona discharge treatment", is a product by process limitation. If the product in the product-by-process claims are the same as or obvious from a product of the prior art, the claims are unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 227 USPQ 964,966 (Fed.Cir 1985). A "product by process" claim is directed to the product per se, no matter how actually made, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oodaira et al. (US Patent No. 4,715,126) in view of Sera et al. (US Patent No. 5,461,202). As best understood by the examiner:

Oodaira teaches all of the elements of the instant claimed invention as stated supra for claim 25, but fails to explicitly teach that said conductor circuit has a metal layer composed of at least one metal selected from among metals (exclusive of Cu) of the 4<sup>th</sup> through 7<sup>th</sup> periods in Group 4A through Group 1B of the long-form periodic table of the elements, Al and Sn on its surface and said metal layer has an interlayer resin insulating layer or a solder resist layer as built thereon.

Sera teaches a conductor circuit (reference number 82) having a metal layer (reference number 83) composed of at least one metal selected from among metals (exclusive of Cu) of the 4<sup>th</sup> through 7<sup>th</sup> periods in Group 4A through Group 1B of the long-form periodic table of the elements, Al and Sn on its surface and said metal layer has an interlayer resin insulating layer (reference number 84) or a solder resist layer as built thereon.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Oodaira and Sera in order to have the conductor circuit having the metal layer composed of at least one metal selected from among metals (exclusive of Cu) of the 4<sup>th</sup> through 7<sup>th</sup> periods in Group 4A through Group 1B of the long-form periodic table of the elements, Al and Sn on its surface and said metal layer has an interlayer resin insulating layer or a solder resist layer as built

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thereon, thus improving the resistance, the solderability, and the durability against bending strains, or the like.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oodaira et al. (US Patent No. 4,715,126). As best understood by the examiner:

Oodaira teaches all of the elements of the instant claimed invention as stated *supra* for claim 25, but fails to explicitly teach that the thickness of said metal layer is 0.01 to 0.2  $\mu\text{m}$ . It would have been obvious to one of ordinary skill in the art at the time the invention was made, to reduce the thickness of the metal layer to be in the range of 0.01 to 0.2  $\mu\text{m}$  in order to improve integration of the device. In addition, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oodaira et al. (US Patent No. 4,715,126) in view of Nye, III et al. (US Patent No. 5,503,286). As best understood by the examiner:

Oodaira teaches all of the elements of the instant claimed invention as stated supra for claim 25, but fails to explicitly teach that said metal layer built on the surface of said resin insulating layer has a Cu layer formed on its surface and said Cu layer has a conductor circuit constructed thereon. Nye teaches a metal layer (reference number 85) and a Cu layer (reference number 90) formed on its surface and said Cu layer has a conductor circuit (reference number 100) constructed thereon. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Oodaira and Nye in order to have the intermediate copper layer between the two non-copper layers, thus improving conductivity and durability of the circuit.

### **Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach some of the elements of the instant claimed invention: Budnaitis (US Patent No. 6,313,411), Bergstresser et al. (US Patent No. 6,296,949), Sachdev et al (US Patent No. 4,692,205) and Higashi et al. (US Patent No. 6,331,679).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached on Monday to Friday.



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12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA



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